

NCE 19-7505

012219



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200
Fax 613 632-5246

Perization

SWA6A-3
Job Sheet 201326



Part No: SWA6A-3

Job Qty: 1 pcs

Part Name: Electric Swivel 6,000 lb Safe Work Load (2,721 Kg)



Part Weight: 0 lbs

Status: New

Priority: Medium

Job Created: 10/1/19

Job Tracking No:

Due Date: 11/1/19

Created By: Marie Lajeunesse

Type: Stock

Description:

Note: DWG SWA6A Rev G, IPP Rev A 17.11.15 New issue DP Verify DD/IPP Rev.B 19.02.27 drawing revision DP Verify DD/IPP Rev. C 19.08.29 drawing revision DP Verify DD/IPP Rev. D 19.09.12 drawing revision DP Verify DD

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup Hrs	Run Hrs	Workcenter / Supplier	Lead Time	
100	External Load - 1	1 pcs	11/1/19		0.00	1.00	External Load - 1		<i>Mechel 2019-10-2</i>
							External Load - 2		
							External Load - 3		
110	External Load - 2 - B4B	1 pcs	11/1/19		0.00	2.00	External Load - 1 - B4B		<i>AP 2019/10/08</i>
							External Load - 2 - B4B		
							External Load - 3 - B4B		
120	QC 5	1 pcs	11/1/19		0.00	0.00	QC 5 - 10		
							QC 5 - 12		
							QC 5 - 17		
							QC 5 - 18		
							QC 5 - 19		
							QC 5 - 22		
							QC 5 - 24		
							QC 5 - 3		
							QC 5 - 43		
							QC 5 - 49		
							QC 5 - 51		
							QC 5 - 58		
							QC 5 - 68		
							QC 5 - 9		
							QC 5 - 50		
							QC 5 - 30		
							QC 5 - 40		
							QC 5 - 61		
							QC 5 - 81		
130	Packaging 3-1 - Stock - B4B	1 pcs	11/1/19		0.00	0.00	Packaging 3 - 1 - B4B		
							Packaging 3 - 2 - B4B		
							Packaging 3 - 3 - B4B		
							Packaging 3 - 4 - B4B		
							Packaging 3 - 5 - B4B		



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Container No: S220659



Part: SWA6A-3

Job No: 201326

Serial No/Batch: S220659

Revision: G

DAS
30
9:59

OCT 10 2019

Plex 10/1/19 10:19 AM Dart.lajeunesse.marie

				Packaging 3 - 6 - B4B		
				Packaging 3 - 7 - B4B		
				Packaging 3 - 8 - B4B	DAS	
				Packaging 3 - 9 - B4B	30	OCT 10 2019
				Packaging 3 - 10 - B4B	9-89	
				Packaging 3 - 11 - B4B		
				Packaging 3 - 12 - B4B		
				Packaging 3 - 13 - B4B		
				Packaging 3 - 14 - B4B		
				Packaging 3 - 15 - B4B		
				Packaging 3 - 16 - B4B		
				Packaging 3 - 17 - B4B		
				Packaging 3 - 18 - B4B		
				Packaging 3 - 19 - B4B		
				Packaging 3 - 20 - B4B		
				Packaging 3 - 21 - B4B		
				Packaging 3 - 22 - B4B		
				Packaging 3 - 23 - B4B		
				Packaging 3 - 24 - B4B		
				Packaging 3 - 25 - B4B		
				Packaging 3 - 26 - B4B		
				Packaging 3 - 27 - B4B		
				Packaging 3 - 28 - B4B		
				Packaging 3 - 29 - B4B		
				Packaging 3 - 30 - B4B		
				Packaging 3 - 31 - B4B		
				Packaging 3 - 32 - B4B		
				Packaging 3 - 33 - B4B		
				Packaging 3 - 34 - B4B		
				Packaging 3 - 35 - B4B		
				Packaging 3 - 36 - B4B	DAS	
135	DC - 1 - B4B	1 pcs	11/1/19	0.00 0.00	DC - 1 - B4B	21 OCT 10 2019
					DC - 2 - B4B	9-89
140	QC 21 - FG	1 pcs	11/1/19	0.00 0.00	QC 21 - FG - 21	
					QC 21 - FG - 70	
					QC 21 - SA - 53	DAS
						21 OCT 10 2019
						9-89

Part Op 100 - Issue S/N.
 Descriptions: 110 - Sheet 1 ***All assembly to be done in accordance with SWA swivel manual*** Engrave T/N And / or S/N number as required Using Marktronic engraver as per DWG. Laser engrave dart logo as per DWG. Small Fab-6 (Small Fab) - Assemble as per DWG. Sheet 1 ***All assembly to be done in accordance with SWA swivel manual*** Engrave T/N And / or S/N number as required Using Marktronic engraver as per DWG. Laser engrave dart logo as per DWG.
 120 - (QC5- Inspect part completeness to step on W/O) Engrave T/N And / or S/N number as required Using Marktronic engraver as per DWG.
 130 - Packaging3 (Identify as per dwg & Stock Location: ST TBA) Bag and tag
 135 - DC (Document Control) Photocopy blue file OM & OOPM-SWA6A Rev H
 140 - (QC21- Final Inspection - Work Order Release)

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
188-FPSS-1032-1/2	Set Screw	1 Ea (1 ea)	100-External Load - 1	5037670
01121-734A5	3 Conductor 14 AWG,	6 ft (6 ea)	110-External Load - 2 - B4B	5177416
188-FSCS-1032-5/8	Flat socket cap Screw	4 Ea (4 ea)	110-External Load - 2 - B4B	5216680
C45-15-13	Bushing for SWA6A	1 Ea (1 ea)	110-External Load - 2 - B4B	5089116
D2728-1	Dart Logo Label Small	1 pcs (1 ea)	110-External Load - 2 - B4B	5210473
EL-PLUG-F	3-Prong Female Spade Plug	1 Ea (1 ea)	110-External Load - 2 - B4B	5163923
EL-PLUG-M	3-Prong Male Spade Plug	1 Ea (1 ea)	110-External Load - 2 - B4B	5216721
SWA6A-100	Lower End	1 pcs (1 ea)	110-External Load - 2 - B4B	5167062
SWA6A-1100	Upper Bearing	1 pcs (1 ea)	110-External Load - 2 - B4B	5193969
SWA6A-1200	Lower DU Bearing	1 Ea (1 ea)	110-External Load - 2 - B4B	5176001
SWA6A-1300	Lower Thrust Bearing	1 Ea (1 ea)	110-External Load - 2 - B4B	5196384
SWA6A-1400	Circlip Internal	1 Ea (1 ea)	110-External Load - 2 - B4B	5176003
SWA6A-1800	Cover	1 pcs (1 ea)	110-External Load - 2 - B4B	5159099
SWA6A-1900	1/4" Female Spade Connector	6 Ea (6 ea)	110-External Load - 2 - B4B	5217494
SWA6A-200	Upper End	1 pcs (1 ea)	110-External Load - 2 - B4B	5190936
SWA6A-300	Bearing Housing	1 pcs (1 ea)	110-External Load - 2 - B4B	5161577
SWA6A-400	Thrust Washer	1 pcs (1 ea)	110-External Load - 2 - B4B	5194935
SWA6A-500	Semi Rings	1 pcs (1 ea)	110-External Load - 2 - B4B	5153196
SWA6A-600	Collar	1 pcs (1 ea)	110-External Load - 2 - B4B	5148661
SWA6A-700B	Wire Clamp, 1/2 X 1-3/8 X 1-1/4	2 pcs (2 ea)	110-External Load - 2 - B4B	5191796
SWA6A-800B	Connector Bushing	1 pcs (1 ea)	110-External Load - 2 - B4B	5194169
SWA6A-900B	Rotary Connector - 3 wire	1 Ea (1 ea)	110-External Load - 2 - B4B	5202399

Job Allocations

Operation	Component Part	Required	Inventory	Allocated
100-External Load - 1	188-FPSS-1032-1/2	1	35	0
110-External Load - 2 - B4B	01121-734A5	6	188	0
	188-FSCS-1032-5/8	4	124	0
	C45-15-13	1	4	0
	D2728-1	1	2,997	0
	EL-PLUG-F	1	11	0
	EL-PLUG-M	1	20	0
	SWA6A-100	1	6	0
	SWA6A-1100	1	4	0
	SWA6A-1200	1	15	0
	SWA6A-1300	1	7	0
	SWA6A-1400	1	24	0
	SWA6A-1800	1	5	0
	SWA6A-1900	6	116	0
	SWA6A-200	1	5	0
	SWA6A-300	1	8	0
	SWA6A-400	1	24	0
	SWA6A-500	1	7	0
	SWA6A-600	1	4	0
	SWA6A-700B	2	57	0
	SWA6A-800B	1	25	0
	SWA6A-900B	1	10	0

Part Specifications

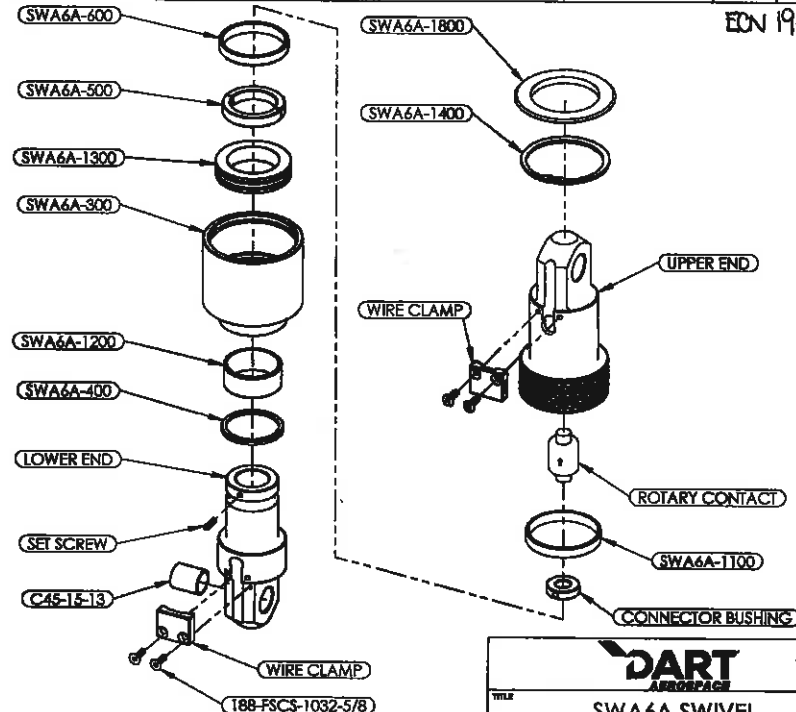
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GREASE AEROSHELL 20.7 (M138724)
 LOCTITE 242 (5186572)
 LOCTITE 620 (5194792)
 SILICONE (5208127)
 LOCTITE ANTI-SEIZE (M138973)

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[illegible]

ECN 19-884

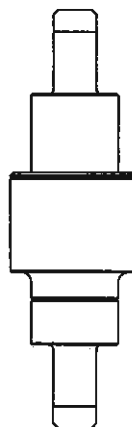
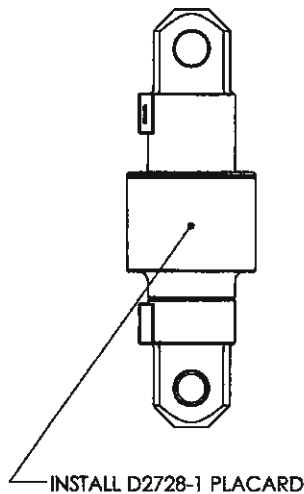


1.  FOR CUSTOMER REBUILD ONLY.
2. ALL ASSEMBLY TO BE DONE IN ACCORDANCE WITH SWA SWIVEL MANUAL.
3. FOR 8 WIRE STRIP OUTER JACKET & REPLACE W/DOUBLE LAYER HEAT SHRINK.
4. USE HEATSHRINK TO INCREASE WIRE DIAMETER IF REQUIRED
5. "SJTOW" WIRE CAN BE USED AS A SUBSTITUTE TO TECTAN/MCMMASTER CONDUCTOR & GAUGE MUST MATCH

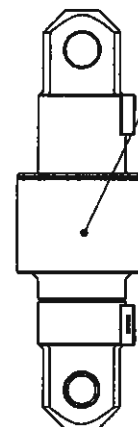
		REV
TITLE		G
SWA6A SWIVEL		
DATE NO.		
SWA6A		
MAT'L PART QUANTITY SPEC'D	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES JOE 2. JOE FRACTIONS & 16 JOE 2. JOE ANGLES & P JOE 2. JOE SURFACES & 13	
DRAWN BY: GILBERT CHECKED: SM 05/11/2017 QA APPR: AA 05/12/2017 QA APPR: JL 05/24/2017 APPROVED: 	1. ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED 2. ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED 3. ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED 4. ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED 5. ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED 6. ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED 7. ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED 8. ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED 9. ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED 10. ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED	
SCALE	N/A	DATE
		2/20/18
		SHEET 1 OF 2

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REVISIONS				DATE	INITIAL	APPROVED
REV	ECR	DESCRIPTION				
3	15-0105	ADDED LASER ENGRAVING SHEET.		5/15/2015	DPD	SM



ENGRAVE P/N, S/N, SWL



DART AEROSPACE	
TITLE SWA6A SWIVEL	
DWG NO. SWA6A	REV G
MATL REAL DIECAST FINISH SPEC	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES .XXX ± .005 FRACTIONS ± 1/8 .XX ± .01 ANGLES ± .5° .X ± .1 SURFACES = 125 ✓ 1. BREAK ALL SHARP EDGES .015 x 45° OR .015R 2. DIMENSIONAL LIMITS APPLY AFTER PLATING 3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009 USED ON MODEL
DRAWN BY: GILBERT CHECKED: SM 05/11/2017 OPFS APPR: AA 05/12/2017 QA APPR: JL 05/24/2017 APPROVED: VJ	
SCALE N/A	DATE 2/20/19
SHEET 2 OF 2	

Work Order 201326

Customer _____

Number of Wires 3Date 2019-10-7

Serial Number _____

Number of Cycles	Load (Lbs.)	Action	Pass/Fail
1	6,000	Check for Conductivity against all wires.	- Pass
1	6,000	Check all wires for grounding against swivel body.	- Pass
1	3,000	Check for Conductivity against all wires.	- Pass
1	3,000	Check all wires for grounding against swivel body.	- Pass
1	1,500	Check for Conductivity against all wires.	- Pass
1	1,500	Check all wires for grounding against swivel body.	- Pass
1	0	Check for Conductivity against all wires.	- Pass
1	0	Check all wires for grounding against swivel body.	- Pass

Test Conducted By: Michel Lalonde

Technician

SubmitSignature: Sylvie Pouchev
QC 5 Small FAB / QA

DQA: _____ Date: _____


 QA Closed: 12 Date: Oct 23/19 **WORK ORDER NON-CONFORMANCE / UPDATE**
Work Order update only ☐

Work Order: <u>201326</u> Part No. <u>SWA### Swivels</u> NCR No. <u>19-7505</u>		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%;"> <tr> <td>Skid-tube ☐</td> <td>Cross tube ☐</td> <td>Water Jet ☐</td> <td>Engineering ☒</td> </tr> <tr> <td>Machining ☐</td> <td>Small Fab ☐</td> <td>Prod. Eng. Coord. ☐</td> <td>Quality ☐</td> </tr> <tr> <td>Thermoforming ☐</td> <td>Finishing ☐</td> <td>Rec/Store/Packaging ☐</td> <td>Other ☐</td> </tr> <tr> <td>Large Fab ☐</td> <td>Composite ☐</td> <td>Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☒	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐																																															
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Date: <u>2019/10/08</u>		Step #: _____		QTY Effective: <u>1</u>		MRB (QSI042) Approval <u>M Lee</u> Feb 01, 2018																																																																	
Description Work Order Deviation - Use a combination of heatshrink tubing and RTV Silicone to create a watertight seal around all electrical connections. - Use a D2728-1 Placard in place of the laser engraved Dart logo				Disposition These deviations are acceptable to carry out on the following swivels: - SWA3 - SWA6A - SWA10A - SWA15A - SWA25A - PSWA25A - <u>HH40-Q280002</u> <u>M Lee</u> There is no impact on fit, form or function.				Completed By <u>A. PATRY</u> <u>2019-10-10</u> Lead hand / Supervisor Approval Verification <u>DAS</u> <u>30</u> <u>9-89</u> OCT 10 2019																																																															
				QC / QA Coordinator Approval <u>68</u> OCT 10 2019																																																																			
Root Cause <table style="width:100%;"> <tr> <td>Environment ☐</td> <td>No Re-verification ☐</td> </tr> <tr> <td>Design ☒</td> <td>Operator ☐</td> </tr> <tr> <td>Doc/Data ☐</td> <td>Offset/Setup ☐</td> </tr> <tr> <td>Equip/Tooling ☐</td> <td>Supplier ☐</td> </tr> <tr> <td>Handling/Pre ☐</td> <td>Training ☐</td> </tr> <tr> <td>Material ☐</td> <td>Use for Testing ☐</td> </tr> <tr> <td>Internal Transport ☐</td> <td>Poor Information ☐</td> </tr> <tr> <td>Tribal Knowledge ☐</td> <td>Rushing ☐</td> </tr> <tr> <td>LOA ☐</td> <td>Product Improvement ☒</td> </tr> <tr> <td>Substation ☐</td> <td>Process Improvement ☒</td> </tr> <tr> <td>Past Expiry Date ☐</td> <td>Manufacturing Process ☐</td> </tr> <tr> <td>Misidentified ☐</td> <td>Past Due ☐</td> </tr> </table>		Environment ☐	No Re-verification ☐	Design ☒	Operator ☐	Doc/Data ☐	Offset/Setup ☐	Equip/Tooling ☐	Supplier ☐	Handling/Pre ☐	Training ☐	Material ☐	Use for Testing ☐	Internal Transport ☐	Poor Information ☐	Tribal Knowledge ☐	Rushing ☐	LOA ☐	Product Improvement ☒	Substation ☐	Process Improvement ☒	Past Expiry Date ☐	Manufacturing Process ☐	Misidentified ☐	Past Due ☐	FAULT CATEGORY <table style="width:100%;"> <tr> <td>Pressure/Forced ☐</td> <td>Temperature/Cure ☐</td> <td>Power Loss/Surge ☐</td> <td>Positioned Wrong ☐</td> </tr> <tr> <td>Bending ☐</td> <td>Set-up ☐</td> <td>Folio/Program ☐</td> <td>Outside Dimensions ☐</td> </tr> <tr> <td>Centre Not Concentric ☐</td> <td>BOM/Route ☐</td> <td>Grain ☐</td> <td>Over/Under tolerance ☐</td> </tr> <tr> <td>Cracks ☐</td> <td>Broken/Damage/Defect ☐</td> <td>Weld ☐</td> <td>Part Incorrect ☐</td> </tr> <tr> <td>Crimp/Kink/Ripple/Wave ☐</td> <td>Inspection Incomplete/Unqualified ☐</td> <td>Wrong Stock Pulled ☐</td> <td>Part Lost/Missing ☐</td> </tr> <tr> <td>Cuffs ☐</td> <td>Contamination ☐</td> <td>Out of Sequence ☐</td> <td>Part Moved ☐</td> </tr> <tr> <td>Crushing ☐</td> <td>Countersink ☐</td> <td>Off-set ☐</td> <td>☒ Drawing ☐</td> </tr> <tr> <td>Heat Treat ☐</td> <td>Cut Too Short ☐</td> <td>Mislabeled ☐</td> <td>Finish ☐</td> </tr> <tr> <td>Wave/Twist In Tube ☐</td> <td>Instructions Incomplete/Unclear ☐</td> <td>☒ Fit/Function ☐</td> <td>Misread ☐</td> </tr> <tr> <td>Marks/Chatter ☐</td> <td>Drill Holes ☐</td> <td>Misaligned/off center ☐</td> <td>Turning Sequence ☐</td> </tr> </table>						Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐	Crushing ☐	Countersink ☐	Off-set ☐	☒ Drawing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐	Wave/Twist In Tube ☐	Instructions Incomplete/Unclear ☐	☒ Fit/Function ☐	Misread ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐
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